

REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

**I. CLAIM STATUS AND AMENDMENTS**

Claims 1-25 were pending in this application when last examined and stand rejected.

Claims 1, 2, 3 and 14 are amended.

Support for the amendment of claims 1, 2, and 14 regarding "a base represented by" can be found in the disclosure, for example, at page 3, lines 20-28, page 4, lines 1-5, page 5, lines 9-15, and in the examples, and in original claims 1, 2, and 14. Further support for the amendment of claim 1 regarding "being conductive" can be found in original claim 12.

Support for the amendment to claim 3 can be found in paragraph [0023] (page 8, lines 6-8).

Support for the amendment to claim 14 can be found in paragraph [0036] (page 11, lines 14-16).

Other minor editorial revisions have been made to the claims to better conform to U.S. claim form. Such revisions are non-substantive and not intended to narrow the scope of protection.

Claim 12 has been cancelled without prejudice or disclaimer thereto. Applicants reserve the right to file a continuation or divisional application on any cancelled subject matter.

Claims 1-11 and 13-25 are pending upon entry of this amendment.

Applicants are submitting the present Amendment without prejudice to the subsequent prosecution of claims to some or all of the subject matter which might be disclaimed by virtue of this response (although none is believed to be), and explicitly reserve the right to pursue some or all of such subject matter, in Divisional or Continuation Applications.

Applicants thank the Examiner for the careful examination of this case and respectfully request reexamination and reconsideration of the case, as amended. Below Applicants address the rejections in the Office Action and explain why the rejections are not applicable to the pending claims as amended.

## **II. WRITTEN DESCRIPTION AND INDEFINITENESS REJECTIONS**

Claim 3 was rejected under 35 U.S.C. § 112, first paragraph, on the basis the specification lacks written support for "substantially no melting point" for the reasons on page 2 of the Office Action.

Claim 3 was rejected under 35 U.S.C. § 112, second paragraph, on the basis the phrase "substantially no melting point" is indefinite for the reasons on page 2 of the Action.

The present amendment overcomes these rejections by removing the term "substantially" from the above noted-phrase such that the claim reads "no melting point" as suggested by the Office at page 2 of the Action. As noted by the Office, support for the revised language can be found in paragraph [0023] (page 8, lines 6-8).

The claim is thus clear, definite and has full written support in the disclosure.

The rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

### **III. ANTICIPATION REJECTIONS**

#### **A. Rejections over KREUER**

Claims 1, 2, and 7-13 were rejected under 35 U.S.C. § 102(b) as anticipated by KREUER et al. (U.S. 6,264,857) for the reasons on pages 3-4 of the Office Action.

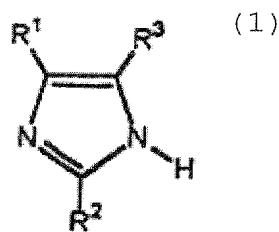
Claims 14-16, 19, 20 and 22-25 were rejected under 35 U.S.C. § 102(b) as anticipated by KREUER et al. (U.S. 6,264,857) for the reasons on pages 4-5 of the Action.

These rejections are respectfully traversed and will be discussed together below.

First, Applicants will discuss the first rejection over KREUER rejecting claims 1, 2 and 7-13.

It is well established that to anticipate a claim, a cited prior art reference must disclose or suggest each and every element of the claimed invention. See, M.P.E.P., Eighth Ed., Rev. 6 (September 2007) at § 2131.

Independent claim 1 recites: “[A]n acid-base mixture comprising: a base component and an acid component, wherein: at least one of the base component and the acid component comprises at least two compounds, the acid-base mixture is ion conductive, and the base component comprises a base represented by chemical formula (1):



wherein R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> each independently represent a hydrogen atom or a hydrocarbon group having 1 to 20 carbon atoms, provided that at least one of them is a hydrocarbon group.

It is respectfully submitted that the KREUER fails to disclose or suggest each and every element of the acid-base mixture of claim 1, namely, that “at least one of the base component and the acid component comprises at least two compounds.”

KREUER teaches a mixture of a base component such as an imidazole, in which the 4 or 5 position are substituted by a hydrocarbon, and an acid component. KREUER further teaches a mixture of a base and an acid to which DMF is added.

However, KREUER discloses merely an acid-base mixture comprising an acid component and a base component both of which contain a single compound. By contrast, claim 1 recites "at least one of the base component and the acid component comprise at least two compounds."

Further, KREUER is silent about the use of at least two of the above imidazoles as a base component. The Examiner points out that DMF is a compound that may act as a base which gives two basic components in the mixture. However, attention should be drawn to that, in KREUER, DMF is mentioned only as an example of the solvents that can be later removed.

As apparent from such disclosure in KREUER, Applicants believe KREUER lacks a teaching or suggestion of a deliberate use of an acid-base mixture in which at least one of an acid component and a base component contains at least two compounds.

Contrary to this, the acid-base mixture of claim 1 requires that at least one of the base component and an acid component contain at least two compounds, and the base component contains at least one base of the above formula (1), which is entirely different from the acid-base mixture of KREUER.

For these reasons, it is respectfully submitted that KREUER fails to disclose or suggest each and every element of independent claim 1. Thus, claim 1 is novel and patentable over KREUER.

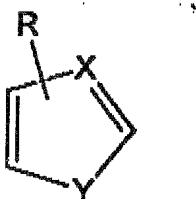
Claims 3-6 depend, either directly or indirectly, on claim 1. Accordingly, the dependent claims are also novel and patentable over KREUER for the same reasons given their dependency on claim 1.

For these reasons, the above-noted first 102(b) rejection over KREUER is untenable and should be withdrawn.

Applicants will now discuss the second 102(b) rejection over KREUER rejecting claims 14-16, 19, 20, and 22-25.

KREUER teaches that the mixture comprising a base, component, such as an imidazole, where the 4 or 5 position is substituted by a hydrocarbon, and an acid component is a proton (ion) conductor.

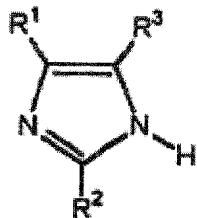
As to the imidazole in KREUER, a compound having the following structure is taught:



wherein X represents O, S or NH; Y represents N or NR'; R represents H, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>6</sub>H<sub>5</sub>, nC<sub>4</sub>H<sub>9</sub>, tC<sub>4</sub>H<sub>9</sub> and C<sub>6</sub>H<sub>4</sub>R'; R' represents H, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, C<sub>6</sub>H<sub>5</sub>, C<sub>6</sub>H<sub>5</sub>-CH<sub>3</sub>, CF<sub>3</sub> and C<sub>4</sub>H<sub>9</sub>. This

compound contains the imidazole represented by the above formula (2) of the amended claim 14.

However, independent claim 14 recites "[A]<sub>n</sub> ion conductor comprising: an acid-base mixture comprising a base component and an acid component, the base component comprises a base represented by chemical formula (2):



wherein R<sup>1</sup>, R<sup>2</sup>, and R<sup>3</sup> each independently represent a hydrogen atom or a hydrocarbon group having 1 to 20 carbon atoms, provided that R<sup>1</sup> and R<sup>3</sup> are different, and said ion conductor has a melting point of 120°C or lower or no melting point, and a glass transition temperature of 25°C or lower."

It should be noted there is no example or discussion in KREUER that uses an imidazole represented by the above formula (2), wherein the substituent at the 4 position and that at the 5 position are different as required in amended claim 14. Consequently, there is no suggestion in KREUER that use of such an imidazole, wherein the substituent at the 4 position and that at the 5 position are different, can attain a lower melting point of an acid-base mixture.

Further, KREUER neither discloses nor suggests the features of the claimed acid-base mixture of claim 14 "having a melting point of 120°C or lower or no melting point" and "having a glass transition temperature of 25°C or lower".

Hence, KREUER cannot be said to disclose or suggest each and every element of independent claim 14. Thus, KREUER cannot anticipate claim 14.

Claims 15-16, 19, 20, and 22-25 depend, either directly or indirectly, on claim 14. Accordingly, the dependent claims are also novel and patentable over KREUER for the same reasons given their dependency on claim 14.

For these reasons, the above-noted second 102(b) rejection over KREUER is untenable and should be withdrawn.

**B. Rejections over WARREN**

Claims 1 and 3-6 were rejected under 35 U.S.C. § 102(b) as anticipated by WARREN (U.S. 3,356,645) for the reasons on pages 4-5 of the Office Action.

Claims 14, 17, 18, and 21 were rejected under 35 U.S.C. § 102(b) as anticipated by WARREN (U.S. 3,356,645) for the reasons on page 5 of the Action.

These rejections are respectfully traversed and will be discussed together below.

Applicants will first discuss the rejection over WARREN rejecting claims 1 and 3-6.

WARREN discloses a process for curing epoxy resins and an acid-base mixture used therein. However, the acid-base mixture of WARREN is not the same as that of the amended claim 1, which clearly requires that "the acid-base mixture is ion conductive." Moreover, WARREN is totally silent about an advantageous effect of a lower melting point that can be attained by selectively using an acid-base mixture wherein at least one of a base component and an acid component includes at least two compounds, as compared to when using an acid-base mixture wherein both an acid component and a base component contain a single compound.

Thus, WARREN fails to disclose or suggest each and every feature of amended claim 1. For these reasons, claim 1 is novel and patentable over WARREN.

Claims 3-6 depend, either directly or indirectly, on claim 1. Accordingly, the dependent claims are also novel and patentable over WARREN for the same reasons given their dependency on claim 1.

For these reasons, the above-noted first 102(b) rejection over WARREN is untenable and should be withdrawn.

Applicants will now discuss the second 102(b) rejection over WARREN rejecting claims 14, 17, 18 and 21.

As discussed immediately above, WARREN does not teach an acid-base mixture that is "ion conductive" as required in amended claim 14. Moreover, WARREN is totally silent about an advantageous effect of a lower melting point that can be attained

by selectively using an acid-base mixture wherein at least one of a base component and acid component includes at least two compounds, as compared to an acid-base mixture wherein both an acid component and a base component contain a single compound.

Furthermore, WARREN neither discloses nor suggests such features of an acid-base mixture having "a melting point of 120°C or lower or no melting point" and "a glass transition temperature of 25°C or lower".

Thus, WARREN fails to disclose or suggest each and every feature of amended claim 14. For these reasons, claim 14 is novel and patentable over WARREN.

Claims 17, 18 and 21 depend, either directly or indirectly, on claim 14. Accordingly, the dependent claims are also novel and patentable over WARREN for the same reasons given their dependency on claim 14.

For these reasons, the above-noted second 102(b) rejection over WARREN is untenable and should be withdrawn.

#### **IV. CONCLUSION**

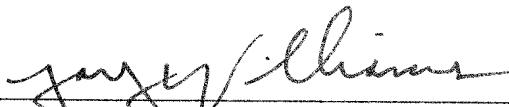
In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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